



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/613,033

07/07/2003

Nima Ahmadvand

50111-21CIP

9380

7380

7590

09/27/2006

SMART & BIGGAR

P.O. BOX 2999, STATION D  
900-55 METCALFE STREET  
OTTAWA, ON K1P5Y6  
CANADA

EXAMINER

VY, HUNG T

ART UNIT

PAPER NUMBER

2163

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/613,033

Applicant(s)

AHMADVAND ET AL.

Examiner

Hung T. Vy

Art Unit

2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,15,17-21,26 and 28-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2 is/are rejected.
- 7) ☒ Claim(s) 15,17-21,26 and 28-32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **Response to Arguments**

1. As of entry of the Applicant's argument filed on 09/05/2006, claims 2, 15, 17-21, 26, and 28-32 are pending. Upon reconsideration, the Applicant's arguments are not persuasive (see response arguments below).

### **Inventorship**

2. In view of the papers filed 12/05/2005, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(a). The inventorship of this application has been changed by Qi Yang Peng, Hanwu Hu, Jidong Xu, Jie Sun and Nima Ahmadvand.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

### **Summary of claims**

3. Claims 2, 15, 17-21, 26, and 28-32 are pending.

Claims 16, 23 and 27 have been cancelled.

Claim 2 is rejected.

Claims 1, 3-14, 22, 24, and 25 have been withdrawn for non-elected species.

Claims 15, 17-21, 26, and 28-32 are objected to allow subject matter.

### **Claim Rejections - 35 U.S.C. § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2163

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Watanabe (U.S. Patent No. 6,307,984).

With respect to claim 2, in fig. 15, Watanabe discloses a multi-wavelength laser source comprising: a source (light source of the transmitter) of optical signal having optical pulses (RZ pulses) at a channel (2-1, 2-2, ...2-n) spacing frequency (See fig. 15, column 19, line 10-25 and column 10, line 50-68, col. 11, line 1-10); a nonlinear medium (phase conjugator 6) comprising multiple segments of optic fiber (6, 6, etc.)(See fig.15) at least one of the segments comprising HNLF (highly nonlinear fiber) (See column 29, line 31-50), the nonlinear medium, and to yield comblike multi-channel WDM laser signals separated from each other by said channel spacing frequency ( $\lambda_{c1}$ ,  $\lambda_{c2}$ , etc.) (See fig. 17 a and b). Watanabe does not disclose an amplifier for amplifying the optical signal to produce an amplified optical signal in an embodiment shown in 15. However, another embodiment, in fig. 3, Watanabe discloses an amplifier for amplifying the optical signal to produce an amplified optical signal in order to reduce the nonlinear distortion (see fig. 3 and see column 10, line 57-60 and column 23, line 60-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Watanabe's sixth embodiment in fig. 15 by providing an amplifier for amplifying the optical signal to produce an amplified optical signal in order to reduce the nonlinear distortion since such an arrangement of an amplifier for the stated purpose

Art Unit: 2163

has been well known in the art as evidenced by the teaching of Watanabe (See column 23, line 60-65).

### **Allowable Subject Matter**

5. With respect to claims 15 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior art of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed a multi-wavelength source wherein DSF, DSF, SMF, HNLF connected **together in sequence.**

With respect to claim 17-21, and 28-32 depend from the objected claims 15 and 26, and would be allowable by virtue of their dependency on claims 15 and 26.

### **Response to Arguments**

6. Applicant's arguments filed 09/05/2006 have been fully considered but they are not persuasive. The following is the applicant's argument:

a. "Turning now to Watanabe, Figure 15 is a block diagram of an optical communication system and is described in column 19, lines 10-25. The optical communication system has n- different transmitters as labeled 2-1, 2-2.... 2-n. An optical multiplexer 62' is provided directly after the optical transmitters. A first optical fiber 4 connects the optical multiplexer 62' to a phase conjugator 6. Applicant appreciates that Watanabe suggests that the phase conjugator may include a nonlinear medium (see column 29, lines 32-35). However, in contrast with the present application, the phase conjugator 6 is not used to generate

comblake multi-channel WDM laser signal. Rather, the phase conjugator 6 converts a signal beam supplied thereto from the first optical fiber 4 into a first phase conjugate beam and outputs the first phase conjugate beam (see column 5, lines 26-29). Figures 17A and 17B illustrate this point. The wavelengths of signal beams outputted from the optical transmitters 2-1, 2-2, ... 2-n are represented by  $\lambda_{s1}$ ,  $\lambda_{s2}$ ,  $\lambda_{s3}$ , ...  $\lambda_{sn}$ , respectively. The wavelength  $\lambda_{s1}$ ,  $\lambda_{s2}$ ,  $\lambda_{s3}$ , ...  $\lambda_{sn}$  of phase conjugate beams outputted from the phase conjugator 6 are disposed at positions symmetrical with the wavelengths  $\lambda_{s1}$ ,  $\lambda_{s2}$ ,  $\lambda_{s3}$ , ...  $\lambda_{sn}$  of the signal beam with respect to the wavelength  $\lambda_p$  of pump light. Therefore, the phase conjugator 6 generates a single beam from each of the optical transmitters 2-1, 2-2, ... 2-n. This is completely different from generating a plurality of signals, specifically comblake multi-channel WDM laser signal, from an amplified optical signal as in the present application".

With respect to the Applicant's argument a above, the applicant's argument are not persuasive because Watanabe discloses with the same structure as claim recites as at least one of the segments comprising HNLF (highly nonlinear fiber) (See column 29, line 31-50) so the HNLF will provide the same result as yield comblake multi-channel WDM laser signals. Further, Watanabe discloses multi-source 2-1, 2-1...2-n so the phase conjugator 6 will have multi-signals.

In view of the forgoing, Examiner submits that watanabe does teach a nonlinear medium for generating comblake multi-channel WDM laser signals. Therefore, the present application does not patentable over Watanabe.

### **Conclusion**

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

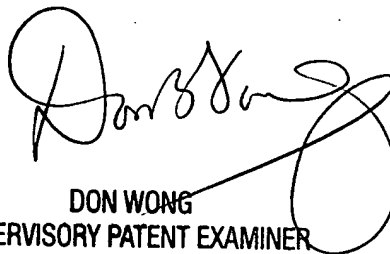
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung T. Vy whose telephone number is 571-2721954. The examiner can normally be reached on 8.30am - 5.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571 272 1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2163

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hung T. Vy  
Art Unit 2821.  
September 14, 2006.



DON WONG  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100